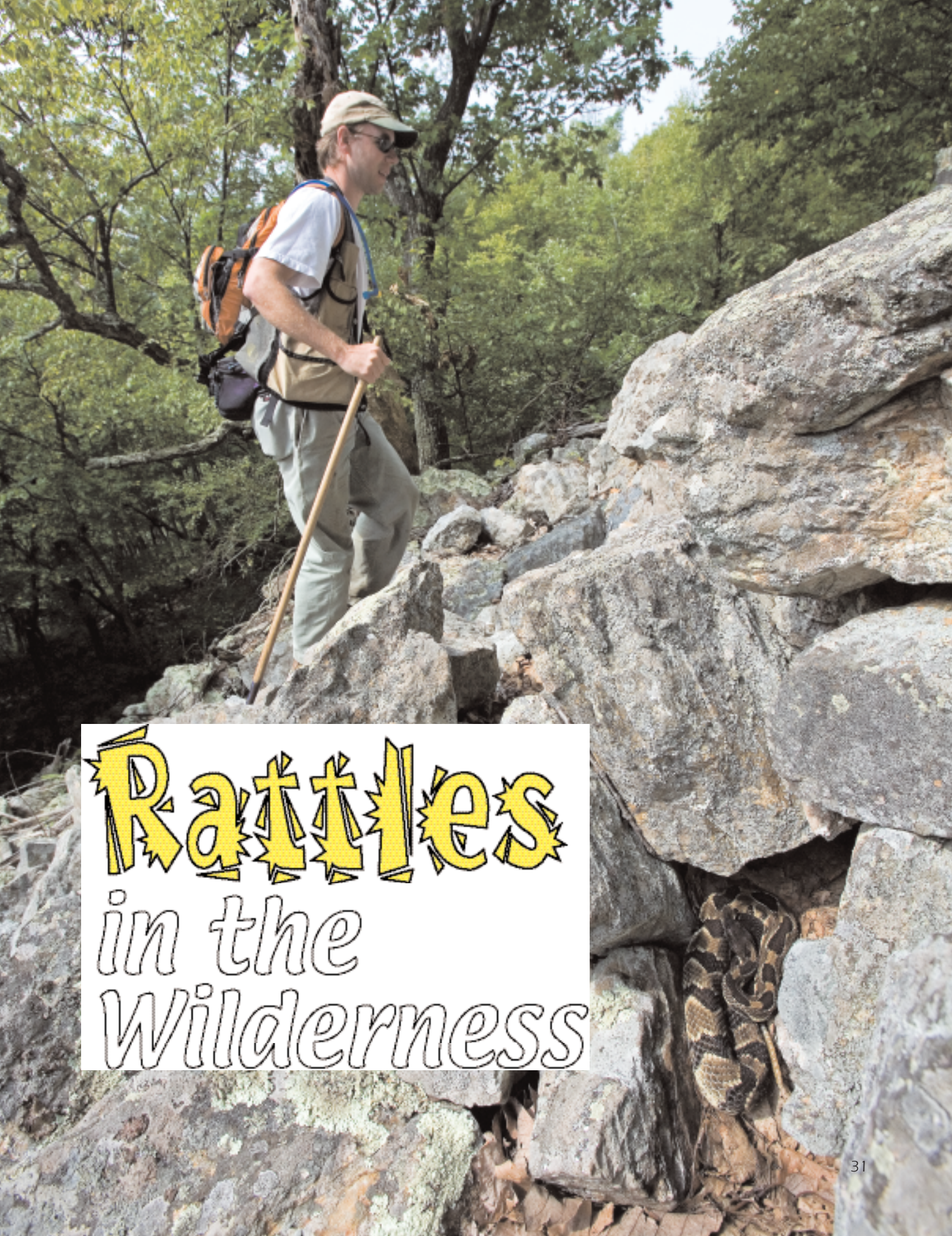


Rattles in the Wilderness

Lee Walker

For hundreds of years fear and misconceptions have maligned one of Virginia's most misunderstood animals—the timber rattlesnake. But now, thanks to efforts by VDGIF, this important symbol of a diverse ecosystem is getting a public relations makeover.

by Michael J. Pinder and David W. Garst

Lee Walker

Top: Mike Pinder and David Garst negotiate the loose rocks on a mountainside in Southwest Virginia in search of timber rattlesnakes. Above: David stops to collect air temperature at a site inhabited by timber rattlesnakes. His study aims to learn more about the distribution and status of this unique reptile in the Commonwealth.

On a sunny September morning in the wilds of western Virginia, I prepare for my first rattlesnake survey. I know a necessity when working around such a dangerous animal is snake chaps, which I bought especially for this occasion. I'm about ready to put them on, when David remarks, "You're not going to need those." I suddenly think to myself, "Are you nuts? We're looking for rattlesnakes of all creatures! What's going to protect me if not these canvas chaps?" I don't utter a word, however. I've known David for years and his experience with this species vastly outweighs my fears.

After hiking up the mountain with lungs and sweat glands in overdrive, we stop at the base of a steep opening strewn with large sandstone boulders. "This is where they'll be so stay alert, watch where you place your hands and feet, and follow me,"

David warns. "Hey, you won't have to tell me twice," I nervously reply. He begins by walking among the loose rocks. I obediently follow step for step.

We search the area for several minutes when at my feet, I hear the distinct buzzing sound of a rattlesnake. I freeze. With eyes as big as baseballs, I suddenly regret not wearing those chaps. I look at David, "What should I do?" In David's "been-there-done-that" tone, he tells me, "Don't worry about that snake. It's under that boulder you're standing on." I stare down and find that he's right. The snake is nowhere to be seen.

He goes on to explain that rattlesnakes are timid, and this one sensed our walking and quickly hid to a safer spot before rattling. Rattling is actually the third line of defense for the species. Its first is to remain undetected, and the second is to flee. Rattling is the snake's way of looking more intimidating and telling trespassers that he knows you're there so don't come any closer. Most people are bitten when they forget to heed or choose to ignore this warning.

David moves up the mountain as I attempt to stay close behind. It's not long before we see our first rattlesnake. Coiled under a rock overhang, it's a beautiful specimen, yellow with black chevron bands. The animal does not rattle or strike, but rather uncoils and expediently heads for cover. Like a train entering a tunnel, the snake disappears among the rocks, its rattle serving as the caboose.

In no time, we see another rattler, this one black with no yellow. Black, yellow, or variations of the two are color phases for the species. While individuals we've seen are obvious on the grayish rocks, this color pattern provides excellent camouflage on a background of leaves and sticks.

The purpose of our visit is more than just providing me the total rattlesnake experience. For the last year, David has been researching the species for his graduate degree at Virginia Tech. Virginia has two separate rattlesnake populations—the canebrake occurs in the southeastern

A female timber rattlesnake basks to regulate her body temperature by moving from sunny to shady areas.

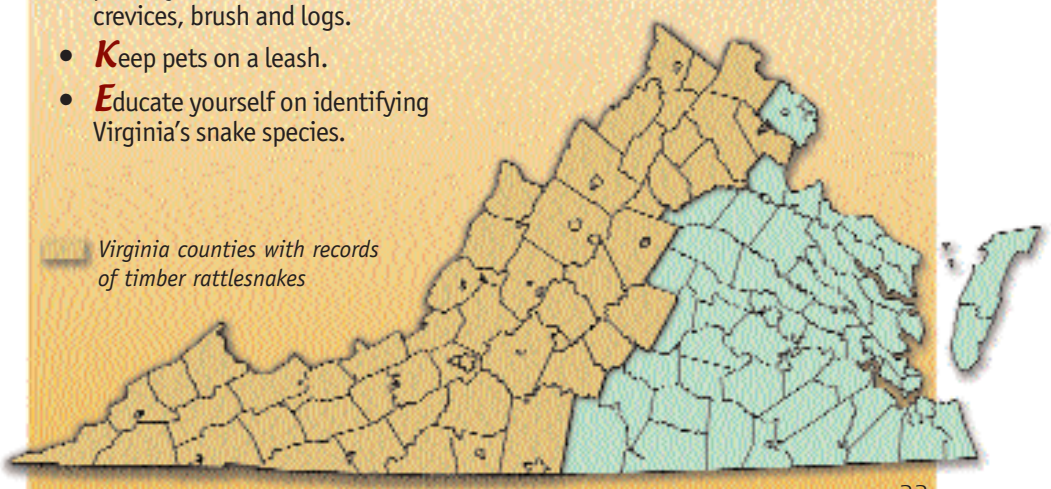
When in Rattlesnake Country

Hiking in areas with rattlesnakes can be a safe and rewarding experience when you follow these simple rules:

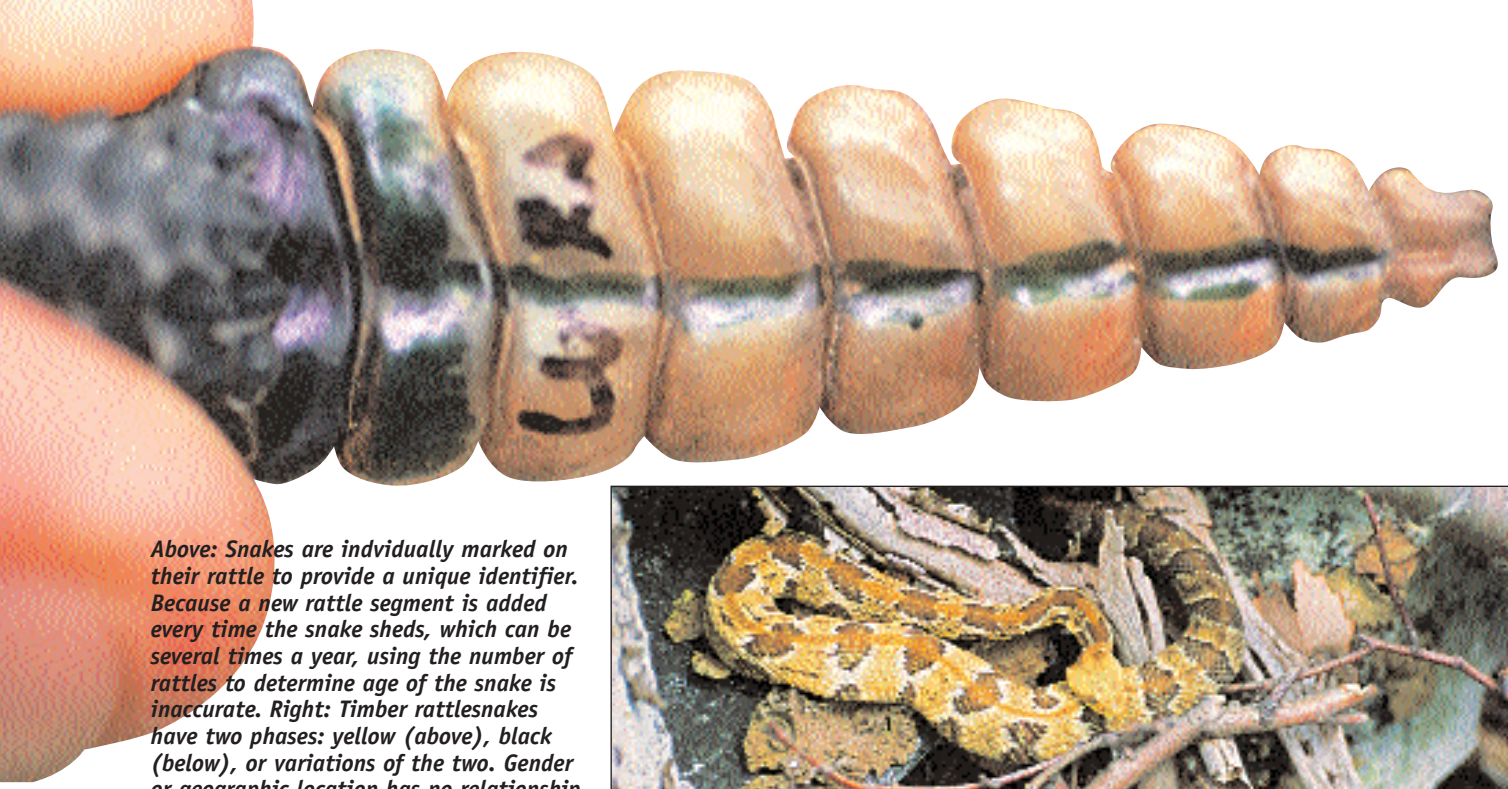
- **S**tay on established paths and trails.
- **N**ever attempt to handle, kill or agitate a rattlesnake. Most people are bitten when they do so.
- **A**void placing hands and feet in places you cannot see such as rock crevices, brush and logs.
- **K**eep pets on a leash.
- **E**ducate yourself on identifying Virginia's snake species.

Remember, finding a rattlesnake is an encounter with wilderness so appreciate it but leave it undisturbed.

Although timber rattlesnakes are known from the entire western half of Virginia, encounters with this elusive animal are rare.



Virginia counties with records of timber rattlesnakes



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Above: Snakes are indvidually marked on their rattle to provide a unique identifier. Because a new rattle segment is added every time the snake sheds, which can be several times a year, using the number of rattles to determine age of the snake is inaccurate. Right: Timber rattlesnakes have two phases: yellow (above), black (below), or variations of the two. Gender or geographic location has no relationship to color phase. Both phases provide excellent camouflage on the forest floor.

Coastal Plain and the timber in the western mountains. Declines in canebrakes have resulted in their listing as a state endangered species. To prevent this same fate for timbers, David seeks to determine how they are faring and what can be done to secure their numbers. A U.S. Fish and Wildlife Service State Wildlife Grant, administered through the Virginia Department of Game and Inland Fisheries' Nongame and Endangered Species Program, funds his research.

The Virginia Department of Game and Inland Fisheries is interested in the timber rattlesnake because it plays vital roles in Virginia's mountain forests. Timbers help control numbers of rodents such as mice, chipmunks and squirrels. In turn, they are prey for red-tailed hawks, black racers, great horned owls, barred owls and opossums. Because they require large forested tracks with little or no human habitation, timber rattlesnakes truly represent some of the last remaining wilderness in the Commonwealth.

In order to get a clear picture of rattlesnake populations, David is focusing his efforts on finding sites called birthing rookeries. A rookery

Timber Rattlesnake Facts

The timber rattlesnake, copperhead and cottonmouth are the only venomous species in Virginia. All three have vertical cat-like pupils, a pit between each eye and nostril, and retractable fangs.

Because a timber rattlesnake's venom is mainly myotoxic and hemotoxic, its main function is to destroy muscle and burst red blood cells, which limits the amount of oxygen that can be carried.

Venom is used to safely kill prey such as mice and squirrels that could otherwise inflict serious injury on the snake during their capture.

A rattlesnake does not have ears but can sense vibrations from the ground through its body.

A single squirrel can provide enough nutrition for a rattlesnake to survive the entire year.

Rattlesnakes are known to travel between 1.5 and 2.5 miles from their den sites.

Rattles are added each time a rattlesnake sheds. They may shed several times a year, so aging individuals by their rattles is inaccurate.

The purpose of rattles is thought to have evolved to warn large animals like buffalos from stepping on them.

Since 1948, only five deaths in Virginia have been attributed to venomous snake bites. This is significantly less than annual deaths caused by dogs, horses and lightening strikes

An image of a rattlesnake with the phrase "Don't Tread On Me" was a Revolutionary War flag. Benjamin Franklin compared characteristics of the rattlesnake to that of our fledgling nation.

Many species without rattles such as ratsnakes, kingsnakes and copperheads will shake their tails in dry leaves to make a rattling sound.

Rattlesnakes are a New World group known only from North, Central, and South America.

site is usually an open, rocky area on a south-facing slope. These unique areas are where pregnant females congregate before giving birth. Knowing their location and protecting the expecting mothers within is essential to conserving the species.

During the summer, pregnant females do not feed but instead use stored fat reserves to sustain their developing young. Because of the high metabolic cost, they only give birth on average every 3 years with some reproducing once every 5–6 years, depending on body condition. A rattlesnake will become reproductively active at approximately 6–8 years old and live to the ripe old age of 32. A mature, reproducing female is therefore a critical component of any population.

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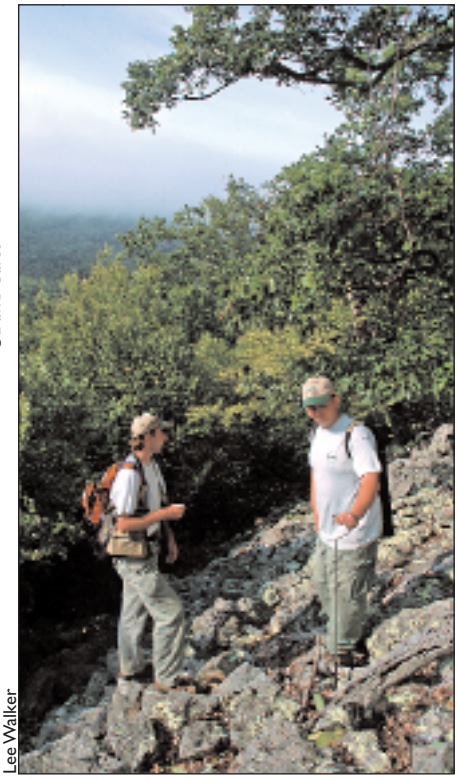

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Above: In Virginia, most rattlesnakes give birth from August to mid-September. Newly born timbers, called neonates, are gray with black chevon bands. Right: After a hard days work, the biologists pause to appreciate the beauty of this rugged, remote landscape before heading home. Below: Living in some of Virginia's last remote areas, these creatures are truly a symbol of wilderness.

While negotiating the terrain, we strike the mother lode, literally. We come upon 10 large snakes quietly sunning themselves. Once we are noticed, they quickly retreat under a large boulder. David instructs me to stand on the same rock and then hands me the end of a tape measure. He heads up the mountain to record habitat data, and despite a slight hesitation, I follow his instructions and wait.

After a few minutes, I see a snake poke its head out from under my rock. I soon notice another, then another, and then another. It isn't long before all the snakes we originally observed begin to crawl all around me. "David, they're coming out. What should I do now?" I hastily exclaim. He shouts down, "Don't do anything. They're not going to bother you." One by one the snakes slowly make their way back to their original resting spots ignoring my intrusion into their domain.

David returns informing me that this population hasn't seen many people. After I ask the obligatory reason why, he explains that in many areas birthing rookeries have been plundered and the snakes killed or removed, causing the remaining survivors to be very skittish. In addition to being killed outright, rattlesnake numbers have declined because of loss of habitat by human encroachment activities such as subdivisions, roads, powerlines and mountaintop coal mining.

Among the larger snakes we observe several smaller gray ones about 12 inches in length, each with a small button on the tail. "These are neonate timber rattlesnakes probably 24–48 hours old," indicates David. Rattlesnakes provide no parental care after giving birth to 3-16 live young. The young stay near the rookery until they shed for the first time, which is usually 6-10 days. After that they travel into the surrounding woods and try to capture a small rodent for their first meal. Prey is killed with the same potent venom used by the adults. Even with this advantage, starvation, predation and failure to find a suitable winter den results in less than 45 percent survival of young

Following several hours of collecting data, we hike down the mountain to our waiting vehicle. I open the hatch and see my unused snake chaps lying on the back seat. I chuckle thinking back to my misconceptions from the beginning of the day and my newly found appreciation for these maligned creatures. I now realize these animals do not deserve their reputations. I've come to understand that timber rattlesnakes, like so much of our wildlife, are an integral part of a healthy, diverse and vibrant forest ecosystem. To fulfill this purpose, we will have to set aside our fears and learn to value this symbol of Virginia's wilderness. n

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Mike Pinder is Wildlife Diversity Project Manager for Southwest Virginia. He works with a wide variety of species groups that includes freshwater mussels, nongame fish, amphibians, and reptiles. He is co-author of the Department's publication "A Guide to the Snakes of Virginia."

David Garst graduated from Virginia Tech in 2003 and is currently working on his Masters Degree in Fisheries and Wildlife Sciences there. David's Masters work is looking at the distribution of timber rattlesnakes in Virginia and using GIS to create habitat models.